

PATENT ABSTRACTS OF JAPAN

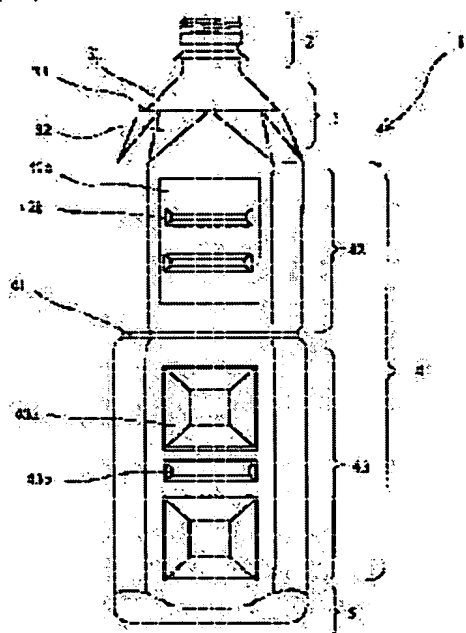
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(21)Application number : 04-305013 (71)Applicant : DAINIPPON PRINTING CO LTD

(22)Date of filing : 16.10.1992 (72)Inventor : KAMEUMI YUUJI

(54) LARGE SIZED BIAXIAL ORIENTED BLOW MOLDED CONTAINER



(57)Abstract:

PURPOSE: To improve strength of a shoulder by providing a stage on a shoulder of a container and forming a part from the shoulder to a body in a polyhedron shape comprising triangular panels.

CONSTITUTION: A biaxial oriented blow molded container 1 integrally formed by blow molding using plastic such as polyethylene terephthalate comprises a mouth 2, a shoulder 3, a body 4 and a bottom 5. In this biaxial oriented blow molded container 1, the shoulder 3 has a cone shaped part 31 smoothly continuing from the mouth 2 and a polyhedron shaped part 32 comprising triangular panels from a lower part of the cone shaped part 31 to the body 4, while a stage 33 is formed at a border between the cone shaped part 31 and the polyhedron shaped part 32. By thus having the cone shape continuously changed into the polyhedron shape, strength of the shoulder 3 can be largely improved for its thickness. In addition the stage 33 can improve the strength of the shoulder 3.

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] The large-sized biaxial-stretching-blow-molding container characterized by consisting of a step which is the boundary section of the polyhedron configuration section which consists of a panel of the triangle which follows a drum section, and the said cone-like section and said polyhedron configuration section in the biaxial-stretching-blow-molding container of a square shape which consists of the regio oralis, a shoulder, a drum section, and a pars basilaris ossis occipitalis from the lower part of the cone-like section which the shoulder of said container follows smoothly from the regio oralis, and said cone-like section.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] Especially this invention relates to the large-sized biaxial-stretching-blow-molding container which raised the reinforcement of a shoulder about a large-sized biaxial-stretching-blow-molding container.

[0002]

[Description of the Prior Art] The biaxial-stretching-blow-molding bottle which consists of saturated polyester resin represented with polyethylene terephthalate has extremely excellent transparency and surface gloss, is beautiful and excellent in gas barrier nature, moisture impermeability, contents-proof physical properties, shelf life, etc. Moreover, it has many advantages, such as there being also little generation of heat at the time of combustion, and not frying an incinerator. Therefore, it is widely used for the container (bottle) of the food grade of various potable water, a seasoning, an alcoholic beverage, and others etc.

[0003] Moreover, since it has a big mechanical strength with this kind of lightweight and bottle, it is in good order for using it as a large-sized bottle, and, recently, inner capacity has

been put in practical use also as a large-sized bottle which exceeds 1l. far.

[0004] However, such a large-sized container is influenced of various external force, such as change of the container internal pressure accompanying the weight of contents, external force, hot fill which start at the time of conveyance of the container with which it filled up again, etc.

[0005] Although the panel structure for reduced pressure-proof or turgor-proof is prepared in a drum section or the pars basilaris ossis occipitalis is strengthened as various configurations to such external force, since there are many limits and the shoulder of a bottle is difficult for thickness to tend to become thin moreover, and also to give sufficient draw magnification like a drum section even if it establishes strengthening structure, it has the problem that it is inadequate in reinforcement.

[0006] Therefore, the purpose of this invention is offering the large-sized biaxial-stretching-blow-molding container which raised the reinforcement of a shoulder.

[0007]

[Means for Solving the Problem] while this invention persons prepare a step in the shoulder of a container wholeheartedly in view of the above-mentioned purpose as a result of research, it results [from there] in a drum section — it hit on an idea of the ability of the polyhedron configuration which consists until of a triangular panel, then the reinforcement of a shoulder to be raised sharply to a header and this invention.

[0008] That is, the biaxial-stretching-blow-molding container of the square shape of this invention which consists of the regio oralis, a shoulder, a drum section, and a pars basilaris ossis occipitalis is characterized by consisting of a step which is the boundary section of the polyhedron configuration section which consists of a panel of the triangle which follows a drum section, and the said cone-like section and said polyhedron configuration section from the lower part of the cone-like section which continues smoothly [a shoulder] from the regio oralis, and said cone-like section.

[0009]

[Example(s) and Function] This invention is explained to a detail below. Drawing 1 is the front view showing the large-sized biaxial-stretching-blow-molding container by one example of this invention. In this example, the biaxial-stretching-blow-molding container 1 formed in one of blow molding using plastics, such as polyethylene terephthalate, consists of the regio oralis 2, a shoulder 3, a drum section 4, and a pars basilaris ossis occipitalis 5, and the regio oralis 2, a drum section 4, and a pars basilaris ossis occipitalis 5 can make it the same various configurations not only as the thing of this example but the conventional biaxial-stretching-blow-molding container.

[0010] In this biaxial-stretching-blow-molding container, a shoulder 3 has the polyhedron configuration section 32 which consists of a panel of the triangle which follows a drum section from the lower part of the cone-like section 31 which continued smoothly from the regio oralis 2, and the cone-like section 31, and the step 33 is formed in the boundary

section of this cone-like section 31 and the polyhedron configuration section 32.

[0011] The top view of such a container is shown in drawing 2 . In drawing 2 $R > 2$, it is formed so that the polyhedron configuration section 32 which consists of a triangular panel may enclose the cone-like section 31, and the step 33 is formed in the octagon in the boundary section of this cone-like section 31 and the polyhedron configuration section 32. In addition, the configuration of a step 33 does not need to be an octagon like this example, and can be made into the shape of a various polygon. moreover, panel 32a of the triangle between which the polyhedron configuration section 32 shares one side with the step 33 of the above-mentioned octagon Panel 32b of the triangle which reaches the vertical angle of an octagon And 32c from – it becomes.

[0012] Thus, by making it shift to a polyhedron configuration continuously from a cone configuration, the reinforcement can be sharply raised to the thickness of a shoulder. Moreover, although the cone-like section 31 and the polyhedron configuration section 32 are formed, and it is formed as that boundary section when considering as the structure which these connected, as for the step 33, research of this invention persons showed that this step also contributed to improvement in the reinforcement of a shoulder.

[0013] In addition, about a drum section 4, like this example, the transverse rib 41 is mostly formed in the center in the hoop direction, and it is desirable that for a drum section to be divided into the upper part section 42 and the lower part section 43 by this transverse rib 41, to make the upper part section reduced pressure-proof and turgor-proof structure by it, and to make the lower part section into turgor-proof structure. Specifically, it is shallow crevice 42a which has a flat base in the upper part section 42. It is formed and is transverse-rib 42b in it. Two are formed. In the lower part section 43 Crevice 43a of the truncated-pyramid configuration gently gone down to the method of the inside of a container Truncated-pyramid-like crevice 43b which is formed two pieces and has among both the oblong base where width of face is narrow for strengthening of the lower part section Being formed is desirable.

[0014] By making a drum section 4 into such a configuration, the upper part section 42 responds to ***** in a container, or reduced pressure, and is crevice 42a. When the whole surface expands or contracts, a part for the pressure is absorbed. And transverse-rib 42b for reinforcement Since the rebounding force grows, it bulges or **** beyond the need and effectiveness which a container does not deform plastically is demonstrated. Moreover, the lower part section 43 is oblong crevice 43b, if ***** starts the lower part section 43 with packing in a container. Crevice 43of ridge part and truncated-pyramid configuration of two pieces a Although it is going to consider as a slant surface part and the lower part section 43 whole tends to bulge, since the lower part section is formed considering the big truncated-pyramid configuration gone down to the method of the inside of loose ***** as the principal part, the big rebounding force is demonstrated to bulge. For this reason, the lower part section of a container demonstrates the effectiveness not bulging.

[0015] Shallow crevice 42a which has the flat base of the upper part section in this example The rate of area is transverse-rib 42b that what is necessary is just to set up suitably according to the magnitude of the reduced pressure made to absorb and turgor. A number does not need to be two like this example and can be suitably set as a container according to the reinforcement made grant. Moreover, crevice 43a of the truncated-pyramid configuration of the lower part section A number does not need to be two pieces like this example, and can be suitably set up according to the reinforcement given to a container.

[0016] as explained above, while preparing a step in the shoulder of a container, it results [from there] in a drum section with the container of this invention -- since until is made into the polyhedron configuration which consists of a triangular panel, the reinforcement of a shoulder is improving sharply.

[0017] Although the biaxial-stretching-blow-molding container of this invention was explained with reference to the accompanying drawing above, this invention can perform various deformation, without being limited to this, unless it deviates from the thought of this invention. for example, the configuration of the drum section hoop direction of a bottle -- this example -- like -- square (what beveled the corner is included) not only -- you may be a rectangle, other polygons, etc., and a step does not need to be an octagon and may have other shape of a hexagon or a polygon.

[0018]

[Effect of the Invention] as explained in full detail above, while preparing a step in the shoulder of a container, it results [from there] in a drum section in this invention -- since until is made into the polyhedron configuration which consists of a triangular panel, the reinforcement of a shoulder is improving sharply.

[0019] Such a biaxial-stretching-blow-molding container of this invention is suitable for especially the container that gives hot fill.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the front view showing the biaxial-stretching-blow-molding container by one example of this invention.

[Drawing 2] It is the top view showing the biaxial-stretching-blow-molding container by one example of this invention.

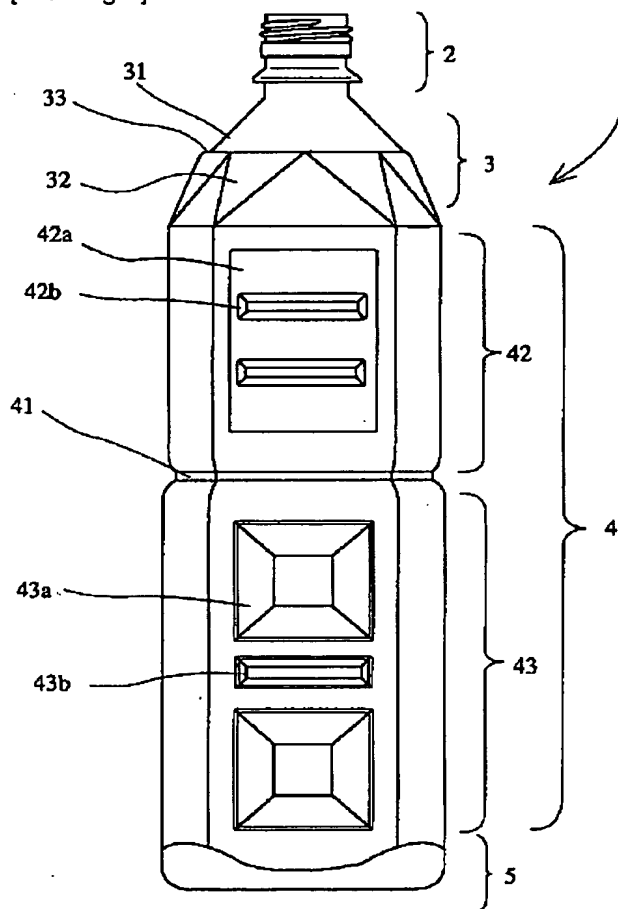
[Description of Notations]

- 1 ... Container
- 2 ... Regio oralis
- 3 ... Shoulder
- 4 ... Drum section
- 5 ... Pars basilaris ossis occipitalis

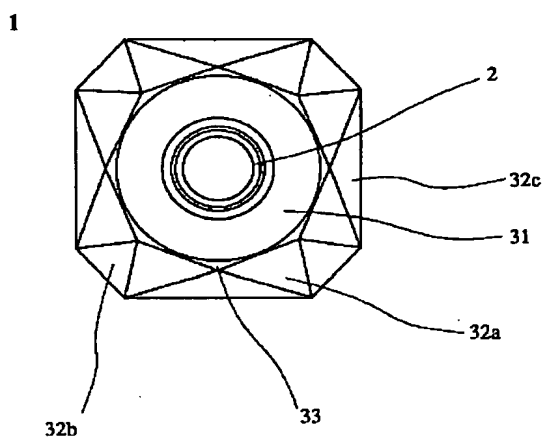
- 31 ... Cone-like section
- 32 ... Polyhedron configuration section
- 33 ... Step
- 41 ... Transverse rib
- 42 ... Upper part section
- 43 ... Lower part section

DRAWINGS

[Drawing 1]



[Drawing 2]



[Translation done.]

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(71)出願人 000002897

大日本印刷株式会社

東京都新宿区市谷加賀町一丁目1番1号

(72)発明者 亀海 裕司

東京都新宿区市谷加賀町一丁目1番1号

大日本印刷株式会社内

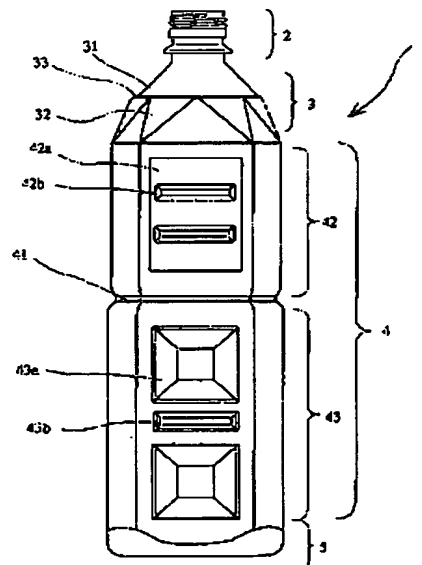
(74)代理人 弁理士 高石 橋馬

(54)【発明の名称】 大型二軸延伸ブロー成形容器

(57)【要約】

【目的】 肩部の強度を向上させた大型二軸延伸ブロー成形容器を提供する。

【構成】 容器1の肩部3に段部33を設けるとともに、そこから胴部に至るまでを三角形のパネルからなる多面体形状32としてなる大型二軸延伸ブロー成形容器。



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【特許請求の範囲】

【請求項1】 口部と、肩部と、胴部と、底部とからなる角型の二軸延伸ブロー成形容器において、前記容器の肩部が、口部から滑らかに連続する円錐状部と、前記円錐状部の下方から胴部へと連続する三角形のパネルからなる多面体形状部と、前記円錐状部と前記多面体形状部との境界部である段部とからなることを特徴とする大型二軸延伸ブロー成形容器。

【発明の詳細な説明】

【0001】

【産業上の利用分野】 本発明は大型二軸延伸ブロー成形容器に関し、特に、肩部の強度を向上させた大型二軸延伸ブロー成形容器に関する。

【0002】

【従来の技術及び発明が解決しようとする課題】 ポリエチレンテレフタレートにより代表される酸和ポリエステル樹脂等からなる二軸延伸ブロー成形ボトルは、極めて優れた透明性及び表面光沢を有し、美観で、ガスバリアー性、水分不透過性、耐内容物性および保存性等に優れている。また、燃焼時の発熱も少なく、焼却炉をいためることもない等、多くの利点を有している。そのため、各種飲料水、調味料、酒類その他の食品用の容器（ボトル）等に広く用いられている。

【0003】 また、この種のボトルは、軽量でかつ大きな機械的強度を有するので、大型のボトルとして使用するのに具合がよく、最近では、内容量が1リットルをはるかに超す大型のボトルとしても実用化されてきている。

【0004】 しかしながら、このような大型の容器は、内容物の重さや、また充填された容器の搬送時にかかる外力、ホットフィル等に伴う容器内圧の変化等、種々の外力の影響を受ける。

【0005】 このような外力に対して、胴部には耐減圧あるいは耐膨張用のパネル構造を設けたり、底部は種々の形状として強化したりしているが、ボトルの肩部は、強化構造を設けるにしても制限が多く、しかも肉厚が薄くなりやすい上に胴部のように十分な延伸倍率を付与するのが困難であるので、強度的に不十分であるという問題がある。

【0006】 したがって本発明の目的は、肩部の強度を向上させた大型二軸延伸ブロー成形容器を提供することである。

【0007】

【課題を解決するための手段】 上記目的に鑑み鋭意研究の結果、本発明者は、容器の肩部に段部を設けるとともに、そこから胴部に至るまでを三角形のパネルからなる多面体形状とすれば、肩部の強度を大幅に向上させることができることを見出し、本発明に想到した。

【0008】 すなわち、口部と、肩部と、胴部と、底部とからなる本発明の角型の二軸延伸ブロー成形容器は、

肩部が、口部から滑らかに連続する円錐状部と、前記円錐状部の下方から胴部へと連続する三角形のパネルからなる多面体形状部と、前記円錐状部と前記多面体形状部との境界部である段部とからなることを特徴とする。

【0009】

【実施例及び作用】 以下本発明を詳細に説明する。図1は本発明の一実施例による大型二軸延伸ブロー成形容器を示す正面図である。本実施例において、ポリエチレンテレフタレート等のプラスチックを用いてブロー成形により一体的に形成された二軸延伸ブロー成形容器1は、口部2と、肩部3と、胴部4と、底部5とからなり、口部2、胴部4及び底部5は本実施例のものに限らず、従来の二軸延伸ブロー成形容器と同様の種々の形状とすることができる。

【0010】 この二軸延伸ブロー成形容器において、肩部3は、口部2から滑らかに連続した円錐状部31と、円錐状部31の下方から胴部4へと連続する三角形のパネルからなる多面体形状部32とを有し、この円錐状部31と多面体形状部32との境界部において段部33が形成されている。

【0011】 このような容器の平面図を図2に示す。図2において、三角形のパネルからなる多面体形状部32が円錐状部31を取り囲むように形成されており、この円錐状部31と多面体形状部32との境界部では、段部33が八角形に形成されている。なお、段部33の形状は、本実施例のように八角形である必要はなく、種々の多角形状とすることができる。また多面体形状部32は、上記八角形の段部33と1辺を共有する三角形のパネル32aと、八角形の頂角に達する三角形のパネル32b及び32cとからなる。

【0012】 このように円錐形状から連続して多面体形状へと移行させることにより、肩部の肉厚に対してその強度を大幅に向上させることができる。また段部33は、円錐状部31と、多面体形状部32とを形成し、これらが連続した構造とする時にその境界部として形成されるものであるが、本発明者らの研究の結果、この段部も肩部の強度の向上に貢献することがわかった。

【0013】 なお、胴部4については、本実施例のように、そのほぼ中央には、周方向に縞リブ41が形成されており、この縞リブ41により、胴部は上方部42と、下方部43とに分割され、上方部を耐減圧及び耐膨張構造とし、下方部を耐膨張構造とするのが好ましい。具体的には、上方部42には、平坦な底面を有する浅い凹部42aが形成されており、その中に縞リブ42bが2本形成されており、また下方部43には、緩やかに容器内方へと下っていく角錐台形状の凹部43aが2個形成されており、両者の間に下方部の強化のために幅の狭い横長の底面を有する角錐台状の凹部43bが形成されているのが好ましい。

【0014】 胴部4をこのような形状とすることにより、上方部42は、容器内の膨出圧あるいは減圧に応じ

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【0018】

【0019】このような本発明の二軸延伸ブロー成形容器は、ホットフィルを施す容器に特に好適である。

【図１】本発明の一実施例による二軸延伸ブロー成形容器を示す正面図である。

【符号の説明】

2. 口部

1. 胸部

[illegible]

5. . . 駐部
國聯

31. . . 田徑部
32. . . 各系部

32 · · · 多面体形状大部
部部

33 · · · 段部

41・・・振りブ

42 · · · 上方部

43 · · · 下方部

FIG. 1 is a perspective view of a first die 100. The die 100 has a square top surface with rounded corners. A central circular opening is formed in the top surface. The opening has a raised rim. Labels 1, 2, 3, 3a, 3b, and 3c point to various features of the die and its opening.

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【図1】

